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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/668,415	09/23/2003	Ronald S. Cok	86741SHS	2020

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Thomas H. Close
Patent Legal Staff
Eastman Kodak Company
343 State Street
Rochester, NY 14650-2201

EXAMINER

DI GRAZIO, JEANNE A

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 06/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/668,415

Applicant(s)

COK ET AL.

Examiner

Jeanne A. Di Grazio

Art Unit

2871

(Handwritten signature)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on ELC March 28, 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) 12-30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 and 31-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 9/2003 & 4/2005
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Priority

No priority is claimed.

Election/Restrictions

Applicant's election with traverse of Species A (claims 1-11 and 31-34 readable thereon) in the reply filed on March 28, 2005 is acknowledged.

Applicant's election of Species A (claims 1-11 and 31-34 readable thereon) in the reply filed on March 28, 2005 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

The requirement is still deemed proper and is therefore made FINAL.

Claims 12-30 have been withdrawn per Response of March 28, 2005.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-11 and 31-34 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As to claim 1, Applicant recites "a light emitting layer having a plurality of light emitting species."

This limitation renders the claim and others dependent therefrom indefinite.

The Examiner has carefully reviewed Applicant's Specification in an effort to determine the precise nature of the light emitting species. The Examiner can find nothing in the Specification which defines the light emitting species.

The Specification notes light emitting species in reference to the Vertical Cavity Surface Emitting Laser (VCSEL) of Figure 2B. The species are referenced by element #29. However, there is no definition for the species.

Furthermore, it is respectfully noted that the light emitting species are illustrated in reference to the VCSEL and not the light emitting layer itself.

While the Specification lists materials that may comprise the light emitting layer (Specification at page 5, lines 16-24), it is respectfully noted that there is no definition of the species.

For examination purposes, the Examiner interprets any light emitting layer as having a plurality of light emitting species with an uncontrolled orientation.

Please note that the Examiner is unable to anticipate the nature of Applicant's amendments to claim 1.

Claims 2-11 are further rejected as indefinite in view of their dependence either directly or indirectly upon indefinite claim 1.

As to claim 31, Applicant recites "a light emitting layer having a plurality of light emitting species."

This limitation renders the claim and others dependent therefrom indefinite.

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The Examiner has carefully reviewed Applicant's Specification in an effort to determine the precise nature of the light emitting species. The Examiner can find nothing in the Specification which defines the light emitting species.

The Specification notes light emitting species in reference to the Vertical Cavity Surface Emitting Laser (VCSEL) of Figure 2B. The species are referenced by element #29. However, there is no definition for the species.

Furthermore, it is respectfully noted that the light emitting species are illustrated in reference to the VCSEL and not the light emitting layer itself.

While the Specification lists materials that may comprise the light emitting layer (Specification at page 5, lines 16-24), it is respectfully noted that there is no definition of the species.

For examination purposes, the Examiner interprets any light emitting layer as having a plurality of light emitting species with an uncontrolled orientation.

Please note that the Examiner is unable to anticipate the nature of Applicant's amendments to claim 31.

Claims 32-34 are further rejected as indefinite in view of their dependence either directly or indirectly upon indefinite claim 31.

Claim Objections

Claim 1 is objected to because of the following informalities:

As to claim 1, Applicant recites, "wherein orientation of the light emitting species is uncontrolled."

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Recitation of the word “uncontrolled” in reference to an orientation is awkward and unclear. The Examiner interprets “uncontrolled” to mean a random orientation.

Appropriate correction is required.

Claim 1 is objected to because of the following informalities:

As to claim 1, Applicant recites “an asymmetric geometric element.” It is not clear in what sense the geometric element is asymmetric. Asymmetry is usually defined with respect to an axis or cross-section. In fact, it is respectfully noted that Applicant’s Figures (in particular Figures 5A, 5B and 5C) show a vertical cavity laser structure with asymmetric geometric element. However, the elements are symmetric at least about both an x and y axis.

Therefore, the geometric element does not appear to be entirely asymmetric.

For examination purposes, the Examiner interprets any geometric element to meet the claimed limitation.

Appropriate correction is required.

Claim 9 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

As to claim 9, the limitation that the grating structure improves surface plasmon light output coupling is not a positive device limitation and thus fails to further limit claims 8 and 1.

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Claim 31 is objected to because of the following informalities:

As to claim 31, Applicant recites, “wherein orientation of the light emitting species is uncontrolled.”

Recitation of the word “uncontrolled” in reference to an orientation is awkward and unclear. The Examiner interprets “uncontrolled” to mean a random orientation.

Appropriate correction is required.

Claim 31 is objected to because of the following informalities:

As to claim 31, Applicant recites “a laterally asymmetric geometric element.” It is not clear in what sense the geometric element is asymmetric. Asymmetry is usually defined with respect to an axis or cross-section. In fact, it is respectfully noted that Applicant’s Figures (in particular Figures 5A, 5B and 5C) show a vertical cavity laser structure with asymmetric geometric element. However, the elements are symmetric at least about both an x and y axis.

Therefore, the geometric element does not appear to be entirely asymmetric.

For examination purposes, the Examiner interprets any geometric element to meet the claimed limitation.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-7, 11 and 31-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent 6,876,143 B2 (to Daniels) in view of United States Patent 6,154,479 (to Yoshikawa et al.).

As to claim 1, Daniels teaches and discloses an organic light active device and methods for its fabrication showing (in Figure 25) an OLED layer (OLED microcapsules 10) in between two substrates (substrates 24)(Applicant's "a light emitting layer having a plurality of light emitting species, wherein orientation of the light emitting species is uncontrolled").

Daniels also illustrates a means for excitation of the OLED layer – that is, top and bottom electrodes are formed on the substrates (Figure 24)(Applicant's "means for excitation of the light emitting layer").

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Daniels does not appear to explicitly specify an asymmetric geometric element that receives emitted light from the light emitting layer and produces polarized light.

Yoshikawa teaches and discloses vertical cavity surface emitting lasers (VCSELs) and VCSEL-based devices (Title, entire patent). Yoshikawa teaches that shape of the VCSEL is a major factor in the VCSEL's ability to emit polarized light (Background of the Invention, and Prior Art Figures 10 illustrating cross-sectional shapes that are ineffective). Polarization is effectively controlled by shape (Column 3, Lines 46-48). See also Figure 9, showing various shapes of cross-sections used for the VCSELs that are effective in polarizing light.

Therefore, it would have been obvious to one of ordinary skill in the art of liquid crystals at the time the invention was made to modify Daniels in view of Yoshikawa for an asymmetric light emitting structure that effectively polarizes light and without the requirement of an additional polarizer (Please see also Column 2, Lines 27-36)(explaining problems with the prior art – that stability of polarization is critical in devices that do not use additional polarizers or polarization-sensitive devices because change of polarization may cause change of reflection at end surfaces of devices and thus an unstable system).

As to claims 2-4, the light emitting layer is organic (Daniels) and may include dyes (Daniels at Column 13, Lines 41-53) and other materials may be added for protection against contamination (Id.).

As to claim 5, as noted, the asymmetric geometric element is a vertical cavity surface emitting laser and is presumed to have asymmetric lateral confinement based on the shapes as disclosed, taught and suggested (Yoshikawa).

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As to claims 6 and 7, it may be presumed that the VCSEL is either organic or inorganic (Yoshikawa).

As to claim 11, it may be presumed that the OLED light emitting layer of Daniels emits white light because it is drawn to color displays.

As to claims 31-34, the method for producing polarized laser light would have been obvious to one of ordinary skill in the art of liquid crystals at the time the invention was made in view of the devices as taught and disclosed by Daniels in view of Yoshikawa for effective light polarization and a stable system.

Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent 6,876,143 B2 (to Daniels) in view of United States Patent 6,154,479 (to Yoshikawa et al.) and further in view of United States patent 6,825,963 (to Kittaka et al.).

As to claims 8-10, Daniels does not appear to explicitly specify that the asymmetric geometric element is a grating that improves surface plasmon light output coupling or that the asymmetric geometric element is a photonic crystal.

Kittaka is drawn to an optical element wherein a photonic crystal or grating is used for propagating specific high-order band light (Column 1, Lines 1-13 and Column 2, Lines 43-46 and Column 6, Lines 32-35).

Therefore it would have been obvious to one of ordinary skill in the art of liquid crystals at the time the invention was made to modify Daniels in view of Kittaka for propagating specific high-order band light as noted.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeanne A. Di Grazio whose telephone number is (571)272-2289.

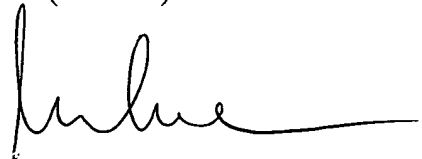
The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim, can be reached on (571)272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jeanne Andrea Di Grazio
Patent Examiner
Art Unit 2871

JDG



DUNG T. NGUYEN
PRIMARY EXAMINER